West Virginia Department of Environmental Protection
Division of Air Quality

Fact Sheet

For Draft/Proposed Renewal Permitting Action Under 45CSR30 and Title V of the Clean Air Act

Permit Number: **R30-10900019-2011**
Application Received: December 20, 2010
Plant Identification Number: 109-00019
Permittee: **Dominion Transmission, Inc.**
Facility Name: **Loup Creek Station**
Mailing Address: 445 West Main Street, Clarksburg, WV 26301

Physical Location:	Kopperston, Wyoming County, West Virginia
UTM Coordinates:	449.31 km Easting • 4176.86 km Northing • Zone 17
Directions:	From I-77 at Harper Road, turn onto State Route 3 north for 10.4 miles. Turn onto Route 99 west for 14.3 miles. Turn left on Route 85 and travel 4 miles to Kopperston Grade School. Turn left on private road to Loup Creek Station.

Facility Description

Loup Creek Compressor Station is a natural gas transmission facility covered by Standard Industrial Classification (SIC) Code 4922. The station has the potential to operate seven (7) days per week, twenty-four (24) hours per day. The station consists of four (4) natural gas fired reciprocating compressor engines, one reciprocating emergency generator, one (1) dehydrator reboiler, one (1) dehydration unit with flare, and storage tanks of various sizes.

Emissions Summary

Plantwide Emissions Summary [Tons per Year]

Criteria Pollutants	Potential Emissions	2009 Actual Emissions
Carbon Monoxide (CO)	92.4	74.90
Nitrogen Oxides (NO_X)	406.8	373.67
Particulate Matter (PM_{10})	1.39	0.99
Total Particulate Matter (TSP)	1.39	0.99
Sulfur Dioxide (SO_2)	0.08	0.06
Volatile Organic Compounds (VOC)	102.4	88.05

PM_{10} is a component of TSP.

Hazardous Air Pollutants	Potential Emissions	2009Actual Emissions
Formaldehyde	7.5	3.5
Benzene	0.6	0.2
Toluene	0.8	4.4*
Ethylbenzene	1.0	0.0
n-Hexane	0.1	0.2
Xylene	1.8	4.1
Acetaldehyde	0.1	0.1
Acrolein	0.1	0.1

Some of the above HAPs may be counted as PM or VOCs.

* The new flare utilized by the dehydration unit was not installed until after the July 12, 2010 Rule 13 permit number R13-2839 was issued. Therefore, the new potential emissions take into account enhanced control where the 2009 actual emissions do not.

Title V Program Applicability Basis

This facility has the potential to emit 406 tons of NOx and 102 tons of VOC. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, Dominion Transmission, Inc. is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

This facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR2	Opacity Requirements for boilers
	45CSR6	Open burning prohibited.
	45CSR10	Sulfur requirements for fuel burned
	45CSR11	Standby plans for emergency episodes.
	45CSR13	New Source Construction
	45CSR17	Control fugitive particulate matter
	WV Code § 22-5-4 (a) (14)	The Secretary can request any pertinent information such as annual emission inventory reporting.
	45CSR30	Operating permit requirement.
	40 C.F.R. Part 61	Asbestos inspection and removal
	40 C.F.R. Part 82, Subpart F	Ozone depleting substances
	40 C.F.R. 60, Subpart JJJJ	NSPS for SI -RICE
	40 C.F.R. 63, Subpart ZZZZ	Area Source RICE Standards
	40 C.F.R. 63, Subpart HH	Area Source Natural Gas Production
State Only:	45CSR4	No objectionable odors.

Each State and Federally-enforceable condition of the draft Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the draft Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the draft Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit *(if any)*
R13-2839A	02-28-2011	
R13-2324B	11-20-2001	

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table B" which may be downloaded from DAQ's website.

Determinations and Justifications

The following describes changes to the most recent Title V permit for this facility.

Changes to Section 2.0 boilerplate language for General Conditions:

Condition 2.1.4 was added as new boilerplate language to clarify the intent of "rolling yearly total"

Changes to Section 3.0 boilerplate language for facility wide requirements:

- Condition 3.1.1and 3.1.2 were updated with new open burning language in accordance with 45CSR6
- Condition 3.1.3 was updated with new asbestos language and an updated 45CSR34 citation because it now incorporates 40 C.F.R. 61, whereas 45CSR15 was repealed.
- Condition 3.3.1.d was added with respect to submitting stack test reports
- Condition 3.7.2 was added to address the non-applicability of CAM within this 2nd renewal permit

Additional changes within section 3.0:

Permit conditions 3.1.13, 3.1.14, and 3.1.15 were all removed from this section of the permit as they pertained to the 300 Hp Auxiliary Generator (Aux), which was removed from service and replaced by a new Cat., 367 Hp unit. As a result of these omissions, the testing requirements of 3.3.2 and 3.3.3 were updated to remove all references to permit condition 3.1.15. Additionally, the record keeping provision of 3.4.4 was removed as it pertained to conditions 3.1.13 and 3.1.14. Lastly, all citations related to minor source NSR permit number R13-2324B were changed to R13-2324. This is a result of section 1.2 accounting for the permit modification identifier.

The opacity monitoring requirement of 3.2.1 was removed. This monitoring was originally devised to demonstrate compliance with the 20% opacity limit of 45CSR6 however, due to the opacity requirement now being streamlined with the zero opacity limit incorporated by permit condition 5.1.6, a new overall monitoring requirement was added as permit condition 5.3.2.

Also within this section the testing frequency specified within conditions 3.2.2 and 3.2.3 was revised. This testing corresponds to compliance with sulfur dioxide and hydrogen sulfide standards as incorporated by permit requirements 3.1.9 and 3.1.10 respectively. The writer reduced the sampling frequency due to a significant compliance margin observed within the historic sampling records. Therefore, the sampling frequency was decreased from annually to once per permit term (every five years).

Changes within section 5.0:

Streamlining language was added to condition 5.1.2 to recognize the more stringent "no visible emissions requirement" for federally enforceable flares under 5.1.6.b. This same logic was used to also streamline the 20% opacity and 40% startup opacity standards under the 45CSR6 incinerator requirements of 5.1.8 and 5.1.9 of the proposed permit.

It should be noted that the different compliance methods were evaluated as related to each of these standards when deciding to streamline the two opacity requirements. The 45CSR6 opacity standard for incinerators is based on Method 9 measurements, which quantifies opacity in order to assess compliance with the 6 minute block average opacity limit of 20%. This regulation also allows up to 40% opacity not to exceed 8 minutes during startup. When this is compared to the "no visible emissions requirement" for federally enforceable flares the writer noted that the associated compliance method consisted of a two hour observation period using Method 22, which allows visible emissions for no more than 5 minutes in any two hour period.

During this review, some hypothetical cases were evaluated to justify streamlining. The first of which tried to address whether or not a source could be in compliance with the "no visible emissions requirement" and not be in compliance with the seemingly less stringent 20% opacity standard of 45CSR6. In order to compare the different averaging times and opacity observation methods (Method 22 vs Method 9) the following scenario was evaluated:

Assume that the flare was just on the verge of failing the 2 hour compliance demonstration, in which during the first five minutes of the test the flare was smoking, but at the five minute mark the visible emissions dissipated and the flare starting burning with zero opacity. As a result of this clear up, the source passed the "no visible emissions requirement" for the remaining 1 hour and 55 minutes of the 2 hour test. Now, hypothetically, in order for the flare to have violated the 20% opacity requirement of 45CSR6, which is the most stringent scenario if we assume this emission episode was not created during a startup condition, then the 6 minute block average opacity readings as calculated by method 9 would have consisted of 24, 15 second opacity reading. The easiest possible noncompliance case to envision would be for the first 16 (4 minutes) readings to be recorded at 30% opacity. Then, during the fifth minute, opacity drops off to zero by the first 15 second interval within the 6^{th} minute as such, (25, 20, 15, 10). This leaves the sixth minute of reading which would have to be (0, 0, 0, 0). By adding up all these 15 second reading over the 6 minute block, the method 9 reading would result in an average opacity of 22.9%, which could indeed exceed the 45CSR6 incinerator standard. However, after putting this hypothetical scenario back into a practical context it was recognized by the writer that since the flare control device is burning a waste gas stream with natural gas assist, we would rarely see opacity from this type of device under normal operating conditions. Therefore, if the flare was to exhibit an opacity reading of at least 30% for a 4 minute period, then there would likely have to be a catastrophic failure of the system, such as a combustion air fan failure or basically something that resulted in a starved air combustion condition. Taking this general control device knowledge into account as well as practical experience of assessing flares used on dehydration still columns, it is the writers' conclusion that the hypothetical case evaluated above is highly unlikely due to the fact that if there was a catastrophic failure resulting in excess opacity, then it wouldn't be conceivable that the flare could pass the rest of the two hour observation period with zero visible emissions. Therefore, the "no visible emissions" requirement would be viewed in the practical sense as the more stringent opacity standard and is sufficient for streamlining compliance with the 45CSR6 opacity standard of 20%. However, in order to assure any catastrophic failures are assessed in a timely manner and to address whether or not 45CSR6 is also being violated if the "no visible emission requirement" is exceeded, additional language was added to the monitoring and test provisions of this proposed renewal to assess the opacity using method 9 to quantify opacity any time it is observed from the flare. In addition to the 2 hour Method 22 verification of no visible emissions this should also assess compliance with the 20% opacity requirement on the short term six minute block average basis.

To summarize these findings, from a practical standpoint it is assumed safe to say that if a flare is in compliance with the "no visible emission requirement" then it will also be in compliance with the 20% requirement from 45CSR6. However, if the compliance scenario is reversed and the flare is found to not be in compliance with the "no visible emission requirement," then it is necessary to then conduct a method 9 assessment in order to determine whether compliance with 45CSR6 is also being compromised.

Permit condition 5.1.12 was added to incorporate the applicability date of 40 C.F.R 63, Subpart HH area source requirements.

Condition 5.1.13 was added to incorporate the general standards from 40 C.F.R. 63, Subpart HH as well as the specific glycol optimization standards of the Regulation. Additionally, within this requirement the exemption criteria is also incorporated in accordance with the threshold of "less than 1 ton/yr actual average benzene emissions". By incorporating the benzene exemption of 1 ton/yr into this permit condition the writer was able to eliminate section 6.0 of the existing Title V permit by adding the overlapping 45CSR13 permit citations to this permit term.

Condition 5.1.14 was added to address timing of implementing the glycol optimization requirement of 5.1.13 should the exemption criteria be exceeded.

New monitoring language was incorporated within, 5.2.1, in order to provide a means of collecting operating data sufficient to demonstrate compliance with the emissions limits, minor HAP source status, as well as the 1 ton/yr benzene exemption threshold for subpart HH.

Testing condition 5.3.1 was modified to adjust the frequency of testing the wet natural gas content entering the dehydration unit. This new condition removed the requirement to test the unit within 180 days of permit issuance due to the source exhibiting a healthy compliance margin based on samples taken on 1-15-2011. Although the gas composition has been known to change over time, the emission unit is now controlled by a flare, which will minimize the resulting emission increased due to fluctuations of the incoming gas composition. Additionally, the

requirement to sample the wet gas within the last two years of the permit term was changed to, "within the 3th year of the permit term". This change is designed to allow one full calendar year of data to be collected within the 3th year of the Title V term. The writer determined this to be necessary in order to correlate with the emission demonstration methods specified under 40 C.F.R. 63, Subpart HH, where calendar year actual annual average operations are allowed to be used, when evaluating actual emission rather than the unit potential for establishing applicability to various levels of control under the Federal Standard.

Test condition 5.3.2 was modified to include a second paragraph to assess compliance with the 20% opacity requirement of 45CSR6 should the "no visible emission" requirement be exceeded. Please note that it is the "no visible emission requirement" as discussed in the preceding text that streamlines compliance with 45CSR6 opacity requirements.

Testing condition 5.3.5 was added to incorporate the area source, subpart HH, provisions for testing. It was also recognized by the writer within streamlining language following this condition that the requirement is satisfied by complying with the more specific requirements of 5.2.1 and 5.3.1 within the proposed permit. As a result, a new record keeping provision was added as 5.4.1. This requirement is to encompass keeping records of all supporting HAP determination data related to the GLYCalc emission estimation software run(s), which is designed to document and support the inputs to the estimating model.

The recordkeeping of VE checks in the existing permit condition 5.4.1 were deleted and the new requirement discussed above added for HAP accounting purposes. The previous opacity record keeping language was determined to be unnecessary in light of streamlining the 45CSR6 opacity requirements with those of the federally enforceable flare provisions "no visible emissions" of 5.1.6.b and this condition already having a recordkeeping component specified within 5.4.6.

Within condition 5.4.3 clarifying text was added to elaborate on the need to keep records of the flare design evaluation even if the specific Method 2 and 18 testing is not initiated by the Director.

Within 5.4.4 a typo was fixed that came from the Rule 13 permit. The reference to 5.1.6 was changed to 5.1.5 since 5.3.4 is associated with HAP thresholds and not flare testing as specified within 5.1.6.

Streamlining language was added to condition 5.4.7, in order to recognize the record keeping associated with wet natural gas throughput that is already encompassed within 5.4.5 via encompassing records from 5.2.3 monitoring.

The reporting provisions of 5.5.2 were updated with more specific language, within the proposed permit, in order to establish a means of demonstrating compliance via a self-monitoring report. This is determined necessary to maintain compliance with minor source applicability thresholds, the 45CSR13 permitted emission limits, and the 1 ton per year benzene exemption threshold from the 40 C.F.R. 63, Subpart HH Area Source provisions. In accordance with the Company's request, this report shall be submitted concurrently with overlapping emissions inventory requirements. This reporting is also tied to the timing specified within 5.3.1, which requires wet gas testing within the 4th year of the permit term. This timeline was chosen in order to allow a complete calendar year of operating data to be collected within the year the sample was taken. By grouping the operating data into a calendar year the annual average values can be tabulated as required for inputs to the GLYCalc emission estimating software. Then, at the end of the year, time is allowed to compile all data and emission estimates, before the March 31st submittal deadline. Since, a Title V renewal application has to be submitted within the last 6 months of the permit term, the timing related to the March 31st deadline should produce a report to WV DAQ within sufficient time for review prior to receiving the Title V application. It is also specified the report be included within the Title V renewal application as well.

Within condition 5.5.3 a typo was corrected, which resulted from the incorporation of the 45CSR13 permit condition. This condition originally referenced 5.3.4 as the testing provision that would require a protocol to be submitted as well as other test date and reporting criteria. It was assumed by the writer that condition 5.3.3 would have been the appropriate cross reference, since 5.3.4 would not have required a protocol.

New Requirements incorporated within section 6.0 and Section 7.0 of the proposed renewal permit

In accordance with R13-2839A, a new section was added to the permit to incorporate NSPS, Subpart JJJJ requirements for a new emergency generator installed at the facility in 2010. This project includes the replacement of the existing auxiliary generator (AUX) with a new Caterpillar G3406, 367 hp, emergency generator (EG-01). Section 6.0 includes all the minor source NSR construction/modification permit requirements and section 7.0 encompasses all the NSPS requirements related to the emergency engine. Updating the renewal permit to incorporate the requirements for the new emergency generator also incorporates the same changes as originally proposed within Title V permit application R30-10900019-2006(SM02) received on November 8, 2010. Therefore, (SM02) as referenced above was rolled into this renewal permitting action.

New Requirements incorporated within section 8.0 and Section 9.0 of the proposed renewal permit

40 CFR 63, Subpart ZZZZ RICE MACT Applicability
Three of the engines are existing spark-ignition (SI) two-stroke lean burn (2SLB) Cooper GMV-8TF Reciprocating Engines/Integral Compressors that combust pipeline quality natural gas and are rated at 880 Hp. The fourth compressor engine is a Caterpillar G3516 (4SLB) RICE rated at 1085 Hp. These engines meet the definition of reciprocating internal combustion engines (RICE) according to 40 CFR § 63.6685(a):

Since, this facility is not a major source of HAPS, the 40 C.F.R. 63, subpart ZZZZ area source requirements apply. The horsepower range for the three 2SLB engines fit into the greater than 500 hp category as established by the regulation.

The three (2SLB) engines are subject to the maintenance requirements (every 4,320 hours change oil/filter, inspect spark plugs, and inspect hoses/belts).

The (4SLB) engine is also in the greater than 500 hp category and is subject to CO limitations, which will require testing to establish compliance as well as to develop continuous compliance operating limits.

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

40 CFR 64-Compliance Assurance Monitoring. This is the second permit renewal for this facility. At the time of the first renewal, CAM was determined not to be applicable to the sources at this facility. Since the first renewal the facility has been modified to permit a new triethylene glycol dehydration unit along with its' associated flare control device under minor NSR permit R13-2839. These requirements were incorporated by a significant modification to the Title V permit under R30-10900019-2006(SM01) on September 27, 2010.

After careful review, the writer determined, that although the dehydration unit reboiler "still vent" would qualify as a PSEU for HAPs as well as VOCs the Title V permit now included control device monitoring, recordkeeping, and reporting which meets the definition of CAM. The MRR for the flare is equivalent to that established under the federal flare provisions of 40CFR§63.11(b). Therefore, the writer has determined that the facility modifications which took place after the original permit issuance should be exempt from CAM due to the compliance monitoring and testing requirements incorporated within the facility's existing Title V permit. The control device is currently required to continuously monitor pilot light availability and periodically test opacity, which is held to zero visible emissions except for periods not to exceed 5 minutes in any two hour period. Additionally, the flare had to conduct a design evaluation to assure compliance with the minimum BTU and maximum tip velocity requirements. This exemption is cited under 40CFR64.2(b)(1)(vi) due to the source already having a continuous compliance determination method in place within their Title V permit that satisfies the Part 64 definition of this term.

Greenhouse Gas Permitting - This is a renewal Title V permit and there have been no modifications that

would have triggered a PSD permit. Therefore, there are no applicable GHG requirements.

Request for Variances or Alternatives

None

Insignificant Activities

Insignificant emission unit(s) and activities are identified in the Title V application.

Comment Period

Beginning Date: November 16, 2011
Ending Date: December 16, 2011

All written comments should be addressed to the following individual and office:

Jesse Hanshaw, P.E.
Title V Permit Writer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Point of Contact

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Response to Comments (Statement of Basis)